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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) |
|---|---|---|
| | 10/796,118 | HARADA, SHIGEKAZU |
| | Examiner | Art Unit |
| | Li Liu | 2613 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on 28 November 2007.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-16,20 and 21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) 1-16,20 and 21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 10 March 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 1/29/2008.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on 01/29/2008 is being considered by the examiner.

### *Response to Arguments*

2. Applicant's arguments with respect to claims 1-16, 20 and 21 have been considered but are moot in view of the new ground(s) of rejection.

1). Applicant's argument – "According to Majima's system and method, during the sweep of the optical filter 503 through a continuous wavelength tunable range, and detecting light signals in that range, there is nothing performed that is within the meaning of generating any signal *"indicating whether or not each of the given plurality of wavelengths used in the transmission is being received."*

Examiner's response – As disclosed by Majima, each sending terminal station performs sweeping to detect any transmission wavelength of another station which may exist on the transmission line (column 9, line 49-54); and FIG. 2A shows two continuous wavelength tunable ranges available on the tunable LD 502. Solid vertical lines show the **existing wavelengths**, while broken vertical lines show the **candidate wavelengths**. Majima teaches that the discriminator 508 produces a signal H (digital signal "1") when the level of the input signal is not smaller than the threshold value, otherwise it produces a signal L (digital signal "0"), and then the wavelength control system 501 controls the tunable LD driver circuit 504 and the tunable optical filter driver

circuit 505 based on a signal outputted from the discriminator 508, thereby performing the control of the wavelength (column 6, line 54-57). That is, the discriminator generates the signal *"indicating whether or not each of the given plurality of wavelengths used in the transmission is being received."*

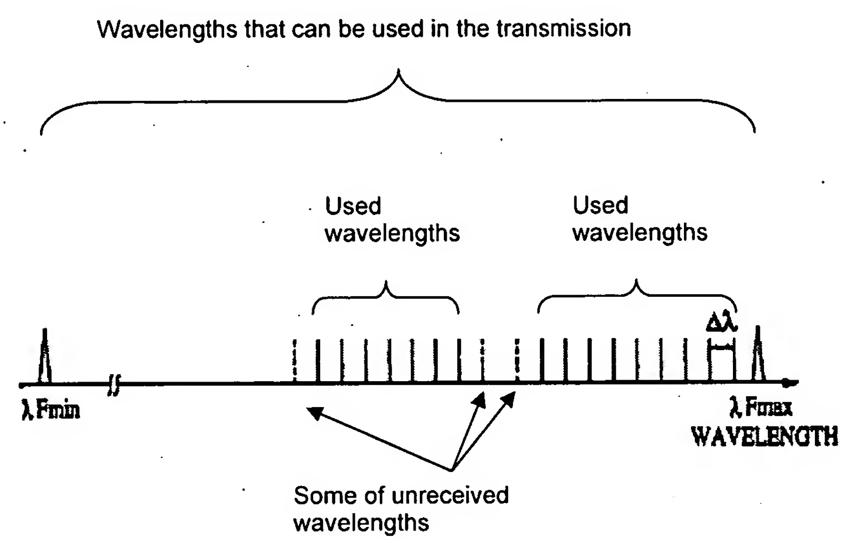


Figure O1

Figure 2 of Majima, or Figure O1 above, clearly shows the received signals (or the used wavelengths) and unreceived wavelengths, or "whether or not each of the given plurality of wavelengths used in the transmission is being received".

2). Applicant's argument – "Applicant further and respectfully submits that after Majima sweeps the optical filter 503 through a continuous wavelength tunable range, and detects light signals in that range, Majima has *not* yet determined whether any wavelength is "available." Majima's system and method *must* instead perform a further and additional step to examine whether or not the selected wavelength, spaced

distance (in terms of wavelength) above or below the light signals in the continuous wavelength tunable range is valid, i.e., whether it is in the continuous wavelength tunable range". "The validity of the wavelength being tested is not established unless the wavelength control system 501 detects light received through the filter 503 at that wavelength".

Examiner's response – As shown in Figure O1 above, Majima has clearly determined whether any wavelength is "available" (e.g., as indicated by the dashed line or unreceived wavelengths in Figure O1). Majima's system and method perform "a further and additional step" to make sure that the tunable laser diode (e.g., 502 in Figure 5) outputs the exact wavelength that is determined in the sweep step. Though an 'optical confluence device', the wavelength of the laser diode 502 can be monitored, and set to the correct wavelength (e.g., $\lambda Fs1$, or $\lambda Fs2$ or $\lambda Fs3$).

### *Claim Objections*

3. Claim 13 is objected to because of the following informalities: claim 13, line 14, "said reception status an optical signal" should be changed to -- said reception status signal --. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

> the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 8-16, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (AAPA: Figure1 and the Background of the Invention) in view of Majima (US 6,101,014) and Nitta (JP03-214832).

1). With regard to claim 1, the AAPA discloses a wavelength division multiplexing transmission system (Figure 1) in which a plurality of remote apparatuses (20-1 to 20-m in Figure 1) are connected to a station apparatus (10 in Figure 1) which communicates with said remote apparatuses (Background of the Invention) using a given plurality of wavelengths (Background of the Invention: the system is a wavelength multiplexing transmission system, each ONU transmits and receives different wavelength) wherein each of said remote apparatuses comprises:

wavelength separating means (e.g., the wavelength demultiplexer 7 in Figure 1 of AAPA) for separating an optical signal including a plurality of wavelengths into separated optical signals;

optical receiving means (the optical receiver 220-1 to 220-m in Figure 1) for receiving said separated optical signals from said wavelength separating means;

wavelength control means for determining an available wavelength (the wavelength controller 240-1 to 240-n which controls the wavelengths of optical signals to be transmitted from the optical transmitter 230-1 to 230-n, page 3, line 8-11);

optical transmitting means (the optical transmitter 230-1 to 230-m in Figure 1) for transmitting an optical signal of said available wavelength determined by said

wavelength control mean (the wavelength controller 240-1 to 240-n which controls the wavelengths of optical signals to be transmitted from the optical transmitter 230-1 to 230-n, page 3, line 8-11).

The AAPA teaches that the optical transmitter 230-m of the **newly added** remote apparatus 20-m contains a wavelength tunable laser. The output wavelength of the wavelength tunable laser must be **controlled** so as to be the wavelength assigned to the remote apparatus 20-m **through the use of a wavelength controller** (page 3, line 8-11). But, in FIG. 1, each time a new remote apparatus is installed, a wavelength to be used in that system must be set by a maintainer or other personnel.

That is, the AAPA fails to teach: an optical receiving means for outputting reception status signal indicating whether or not each of the given plurality of wavelengths used in the transmission system is being received; and wavelength control means for determining an available wavelength as a transmission and reception signal on the basis of said reception status signal.

However, Majima, in the same field of endeavor, teaches a system and method (Figure 4 and Figure 5) in which the optical receiving means (the Light Receiving Element and the Discriminator in Figure 5) for outputting reception status signal indicating whether or not each of the given plurality of wavelengths used in the transmission system is being received (Majima discloses that each sending terminal station performs sweeping to detect any transmission wavelength of another station which may exist on the transmission line, column 9, line 49-54; and FIG. 2A shows two continuous wavelength tunable ranges available on the tunable LD 502. Solid vertical

lines show the **used wavelengths**, while broken vertical lines show the **candidate wavelengths or unused wavelength**. Majima teaches that the discriminator 508 produces a signal H (digital signal "1") when the level of the input signal is not smaller than the threshold value, otherwise it produces a signal L (digital signal "0")); and wavelength control means for determining an available wavelength as a transmission and reception signal on the basis of said reception status signal (the wavelength control system 501 controls the tunable LD driver circuit 504 based on a signal outputted from the discriminator 508, thereby performing the control of the wavelength, column 6, line 54-57).

Majima teaches that the transmitting terminal station controls the wavelength tunable optical transmitter such that the transmitter transmits light of a wavelength which is not being used on the network communication transmission line. Majima's method also can be carried out such that the delivery of the output light from the light-emitting means to the transmitting line is prohibited until the wavelength of the output light is set not to interfere with the other light. Thus, the delivery of the output light is controlled to avoid any interference which otherwise may be caused by delivering light of a wavelength which risks interference (column 4, line 30-47). Ref to Figures 1 and 2, wavelengths indicated by broken vertical lines are located as the candidates of the transmission wavelength to be set.

Another prior art, Nitta, also teaches a system and method which provides a specific signal detection means finding out a communication available wavelength not in use from an available wavelength region at desired transmission and detecting a

communication destination specific signal when a communication request is detected. Nitta discloses an optical receiving means (the photodiode 108 in Figure 2) for outputting reception status signal indicating whether or not each of the given plurality of wavelengths used in the transmission system is being received (ABSTRACT); and wavelength control means (the control circuit 112) for determining an available wavelength as a transmission and reception signal on the basis of said reception status signal (ABSTRACT).

As disclosed by the AAPA, for a conventional system, each time a new remote apparatus is installed, a wavelength to be used in that system must be set by a maintainer or other personnel. And collisions between signals may occur and action must be taken to handle them.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the method and system of autonomously controlling and setting of an available wavelength as taught by Majima and Nitta et al to the system of applicant admitted prior art so that the controller can get the reception status information from the receiver, and then desired wavelength for reception and transmitting can be easily and automatically selected based on the received information, and then no man-hours are required while a new remote apparatus is added or updated.

2). With regard to claim 2, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 1 above. And the AAPA and Majima and Nitta et al further disclose wherein said wavelength control means sets said available wavelength

as a transmission and reception signal and outputs a wavelength control signal for setting said available wavelength (as shown in Figures 2, 4 and 5 of Majima, the wavelength control system controls the tunable LD driver circuit based on a signal outputted from the discriminator, thereby performing the control of the wavelength, column 6, line 54-57).

3). With regard to claim 3, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 1 above. And the AAPA and Majima and Nitta et al further disclose wherein said wavelength control means determines the wavelength of an unreceived optical signal among the wavelengths used in the transmission system as said as the available wavelength and sets said available wavelength as a transmission and reception wavelength to be used in said remote apparatus (Majima: Figures 1 and 2, wavelengths indicated by broken vertical lines are located as the candidates of the transmission wavelength to be set).

4). With regard to claim 4, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 1 above. But, the AAPA and Majima and Nitta et al do not expressly disclose wherein said wavelength control means determines the wavelength of a received signal as said available wavelength and sets said available wavelength as a transmission and reception signal to be used in-said remote apparatus.

In Figure 4 of Majima, a star coupler is used so that the optical node receives all existing wavelength, then the optical node must determine an unused wavelength. However, as disclosed by the AAPA, a wavelength demultiplexer can be used to separate the wavelengths from the station apparatus 10, and each remote apparatus

(e.g., 20-1) only receives one wavelength. Therefore, it is obvious to one skilled in the art to configure the wavelength controller so that the wavelength determining means determines the wavelength of a received optical signal as the available wavelength and sets the wavelength as a transmission and reception wavelength to be used in said remote apparatus.

5). With regard to claim 8, the AAPA and Majima and Nitta disclose all of the subject matter as applied to claim 1 above. And the AAPA and Majima and Nitta et al further disclose wherein each of said remote apparatuses and said station apparatus are connected with each other through optical branching and coupling means (7 and 8 in Figure 1 of the AAPA, or the star coupler in Figure 4 of Majima).

6). With regard to claim 9, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claims 1 and 8 above. And the AAPA and Majima and Nitta et al further disclose wherein said optical branching and coupling means is an optical coupler (the star coupler in Figure 4 of Majima).

7). With regard to claim 10, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claims 1 and 8 above. And the AAPA and Majima and Nitta et al further disclose wherein said optical branching and coupling means is wavelength demultiplexing and multiplexing means (7 and 8 in Figure 1 of the AAPA).

8). With regard to claim 11, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 1 above. And the AAPA and Majima and Nitta et al further disclose wherein said plurality of remote apparatuses and said station

apparatus are connected in a star topology (Figure 1 of the admitted prior is a star topology, page 2 line 9, and Figure 4 of Majima).

9). With regard to claim 12, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 1 above. But, the AAPA and Majima and Nitta et al do not expressly disclose wherein said plurality of remote apparatuses and said station apparatus are connected in a tree topology.

However, as the applicant state a tree system is just a configuration in which a number of remote apparatuses are connected to each other through a relay point such as a star coupler (page 1, line 17-20). So, the tree topology is just adding another "star" configuration to a star configuration. Therefore, Claim 12 is not patentable different from the star topology in admitted prior art in view of Majima and Nitta et al, because it is "to duplicate a part for a multiple effect" (see St. Regis Paper Company v. Bemis Company, Inc., 193 USPQ 8 (CA 7 1977)).

10). With regard to claim 13, the AAPA discloses a remote apparatus (20-1 to 20-m in Figure 1) in a wavelength division multiplexing transmission system (Figure 1) in which a plurality of remote apparatuses are connected to a station apparatus (10 in Figure 1) and communication is performed among said remote apparatuses and the station apparatus using a given plurality of wavelengths (Background of the Invention: the system is a wavelength multiplexing transmission system, each ONU transmits and receives different wavelength), said remote apparatus comprising:

wavelength separating means (e.g., the wavelength demultiplexer 7 in Figure 1 of AAPA) for separating an optical signal including a plurality of wavelengths into separated optical signals;

optical receiving means (the optical receiver 220-1 to 220-m in Figure 1);

wavelength control means for determining an available wavelength as a transmission and reception signal (the wavelength controller 240-1 to 240-n which controls the wavelengths of optical signals to be transmitted from the optical transmitter 230-1 to 230-n, page 3, line 8-11); and

optical transmitting means (the optical receiver 220-1 to 220-m in Figure 1) for transmitting an optical signal of said available wavelength determined by said wavelength control means.

The AAPA teaches that the optical transmitter 230-m of the **newly added** remote apparatus 20-m contains a wavelength tunable laser. The output wavelength of the wavelength tunable laser must be **controlled** so as to be the wavelength assigned to the remote apparatus 20-m **through the use of a wavelength controller** (page 3, line 8-11). But, in FIG. 1, each time a new remote apparatus is installed, a wavelength to be used in that system must be set by a maintainer or other personnel.

That is, the AAPA fails to teach: optical receiving means for generating and outputting a reception status signal indicating whether or not each of the given plurality of wavelengths used in the transmission system is being received; and wavelength control means for determining an available wavelength as a transmission and reception signal on the basis of said reception status signal.

However, Majima, in the same field of endeavor, teaches a system and method (Figure 4 and Figure 5) in which the optical receiving means (the Light Receiving Element and the Discriminator in Figure 5) for outputting reception status signal indicating whether or not each of the given plurality of wavelengths used in the transmission system is being received (Majima discloses that each sending terminal station performs sweeping to detect any transmission wavelength of another station which may exist on the transmission line, column 9, line 49-54; and FIG. 2A shows two continuous wavelength tunable ranges available on the tunable LD 502. Solid vertical lines show the **used wavelengths**, while broken vertical lines show the **candidate wavelengths or unused wavelength**. Majima teaches that the discriminator 508 produces a signal H (digital signal "1") when the level of the input signal is not smaller than the threshold value, otherwise it produces a signal L (digital signal "0")); and wavelength control means for determining an available wavelength as a transmission and reception signal on the basis of said reception status signal (the wavelength control system 501 controls the tunable LD driver circuit 504 based on a signal outputted from the discriminator 508, thereby performing the control of the wavelength, column 6, line 54-57).

Majima teaches that the transmitting terminal station controls the wavelength tunable optical transmitter such that the transmitter transmits light of a wavelength which is not being used on the network communication transmission line. Majima's method also can be carried out such that the delivery of the output light from the light-emitting means to the transmitting line is prohibited until the wavelength of the output

light is set not to interfere with the other light. Thus, the delivery of the output light is controlled to avoid any interference which otherwise may be caused by delivering light of a wavelength which risks interference (column 4, line 30-47). Ref to Figures 1 and 2, wavelengths indicated by broken vertical lines are located as the candidates of the transmission wavelength to be set.

Another prior art, Nitta, also teaches a system and method which provides a specific signal detection means finding out a communication available wavelength not in use from an available wavelength region at desired transmission and detecting a communication destination specific signal when a communication request is detected. Nitta discloses an optical receiving means (the photodiode 108 in Figure 2) for outputting reception status signal indicating whether or not each of the given plurality of wavelengths used in the transmission system is being received (ABSTRACT); and wavelength control means (the control circuit 112) for determining an available wavelength as a transmission and reception signal on the basis of said reception status signal (ABSTRACT).

As disclosed by the AAPA, for a conventional system, each time a new remote apparatus is installed, a wavelength to be used in that system must be set by a maintainer or other personnel. And collisions between signals may occur and action must be taken to handle them.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the method and system of autonomously controlling and setting of an available wavelength as taught by Majima and Nitta et al to

the system of applicant admitted prior art so that the controller can get the reception status information from the receiver, and then desired wavelength for reception and transmitting can be easily and automatically selected based on the received information, and then no man-hours are required while a new remote apparatus is added or updated.

11). With regard to claim 14, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 13 above. And the AAPA and Majima and Nitta et al further disclose wherein said wavelength control means sets said available wavelength as a transmission and reception signals and generates and outputs a wavelength control signal for setting said available wavelength (as shown in Figures 2, 4 and 5 of Majima, the wavelength control system controls the tunable LD driver circuit based on a signal outputted from the discriminator, thereby performing the control of the wavelength, column 6, line 54-57).

12). With regard to claim 15, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 13 above. And the AAPA and Majima and Nitta et al further disclose wherein said wavelength control means determines the wavelength of an unreceived optical signal among the wavelengths used in the transmission system as said available wavelength and sets said available wavelength as a transmission and reception wavelength (Majima: Figures 1 and 2, wavelengths indicated by broken vertical lines are located as the candidates of the transmission wavelength to be set).

13). With regard to claim 16, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 13 above. But, the AAPA and Majima and Nitta et

al do not expressly disclose wherein said wavelength control means determines the wavelength of a received optical signal as said available wavelength and sets said available wavelength as a transmission and reception wavelength.

In Figure 4 of Majima, a star coupler is used so that the optical node receives all existing wavelength, then the optical node must determine an unused wavelength. However, as disclosed by the AAPA, a wavelength demultiplexer can be used to separate the wavelengths from the station apparatus 10, and each remote apparatus (e.g., 20-1) only receives one wavelength. Therefore, it is obvious to one skilled in the art to configure the wavelength controller so that the wavelength determining means determines the wavelength of a received optical signal as the available wavelength and sets the wavelength as a transmission and reception wavelength to be used in said remote apparatus.

14). With regard to claim 20, the AAPA discloses a method for adding a remote apparatus to a wavelength division multiplexing transmission system in which a plurality of remote apparatuses (20-1 to 20-m in Figure 1) are connected to the station apparatus (10 in Figure 1) and communication is performed among said remote apparatuses and the station apparatus using a given plurality of wavelengths (Background of the Invention: the system is a wavelength multiplexing transmission system, each ONU transmits and receives different wavelength), said method comprising:

separating an optical signal including a plurality of wavelengths into separated optical signals (e.g., the wavelength demultiplexer 7 in Figure 1 of AAPA separates an optical signal into separated optical signals); and

receiving an optical signal (the optical receiver 220-1 to 220-m in Figure 1);

determining an available wavelength (the wavelength controller 240-1 to 240-n which controls the wavelengths of optical signals to be transmitted from the optical transmitter 230-1 to 230-n, page 3, line 8-11);

transmitting an optical signal (the optical transmitter 230-1 to 230-m in Figure 1).

The AAPA teaches that the optical transmitter 230-m of the **newly added** remote apparatus 20-m contains a wavelength tunable laser. The output wavelength of the wavelength tunable laser must be **controlled** so as to be the wavelength assigned to the remote apparatus 20-m **through the use of a wavelength controller** (page 3, line 8-11). But, in FIG. 1, each time a new remote apparatus is installed, a wavelength to be used in that system must be set by a maintainer or other personnel.

That is, the AAPA fails to teach: generating and outputting a reception status signal indicating whether or not wavelengths used in the transmission system are being received; determining an available wavelength on the basis of said reception status signal; and transmitting an optical signal of said available wavelength.

However, Majima, in the same field of endeavor, teaches a method (Figure 4 and Figure 5) in which the optical receiving means (the Light Receiving Element and the Discriminator in Figure 5) generates and outputs reception status signal indicating whether or not wavelengths used in the transmission system are being received (Majima discloses that each sending terminal station performs sweeping to detect any transmission wavelength of another station which may exist on the transmission line, column 9, line 49-54; and FIG. 2A shows two continuous wavelength tunable ranges

available on the tunable LD 502. Solid vertical lines show the **used wavelengths**, while broken vertical lines show the **candidate wavelengths or unused wavelength**. Majima teaches that the discriminator 508 produces a signal H (digital signal "1") when the level of the input signal is not smaller than the threshold value, otherwise it produces a signal L (digital signal "0")); and wavelength control means for determining an available wavelength on the basis of said reception status signal and transmitting an optical signal of said available wavelength (the wavelength control system 501 controls the tunable LD driver circuit 504 based on a signal outputted from the discriminator 508, thereby performing the control of the wavelength, column 6, line 54-57).

Majima teaches that the transmitting terminal station controls the wavelength tunable optical transmitter such that the transmitter transmits light of a wavelength which is not being used on the network communication transmission line. Majima's method also can be carried out such that the delivery of the output light from the light-emitting means to the transmitting line is prohibited until the wavelength of the output light is set not to interfere with the other light. Thus, the delivery of the output light is controlled to avoid any interference which otherwise may be caused by delivering light of a wavelength which risks interference (column 4, line 30-47). Ref to Figures 1 and 2, wavelengths indicated by broken vertical lines are located as the candidates of the transmission wavelength to be set.

Another prior art, Nitta, also teaches a method which provides a specific signal detection means finding out a communication available wavelength not in use from an available wavelength region at desired transmission and detecting a communication

destination specific signal when a communication request is detected. Nitta discloses an optical receiving means (the photodiode 108 in Figure 2) for outputting reception status signal indicating whether or not each of the given plurality of wavelengths used in the transmission system is being received (ABSTRACT); and wavelength control means (the control circuit 112) for determining an available wavelength as a transmission and reception signal on the basis of said reception status signal (ABSTRACT).

As disclosed by the AAPA, for a conventional system, each time a new remote apparatus is installed, a wavelength to be used in that system must be set by a maintainer or other personnel. And collisions between signals may occur and action must be taken to handle them.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the method of autonomously controlling and setting of an available wavelength as taught by Majima and Nitta et al to the system of applicant admitted prior art so that the controller can get the reception status information from the receiver, and then desired wavelength for reception and transmitting can be easily and automatically selected based on the received information, and then no man-hours are required while a new remote apparatus is added or updated.

15). With regard to claim 21, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 1 above. And the AAPA and Majima and Nitta et al further disclose the method further comprising:

generating and outputting, based on a result of said determining, a wavelength control signal for setting said available wavelength and setting, based on said

wavelength control signal, said available wavelength as a transmission and reception signal (as shown in Figures 2, 4 and 5 of Majima, the wavelength control system controls the tunable LD driver circuit based on a signal outputted from the discriminator, thereby performing the control of the wavelength, column 6, line 54-57).

6. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art and Majima (US 6,101,014) and Nitta (JP03-214832) as applied to claim 1 above, and in further view of Miyazaki et al (US 2003/0118280).

1). With regard to claim 5, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 1 above. But, the AAPA and Majima do not expressly disclose wherein said station apparatus comprises optical control means for determining a wavelength to be used, on the basis of an optical signal received from said remote apparatus.

The AAPA and Majima disclose a wavelength control means for determining an available wavelength as a transmission and reception signal on the basis of said reception status signal at the remote node. And Nitta et al actually teaches that the control means can be installed at the station side (Figure 1, 1-1 to 1-n).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use another wavelength control means at the station side. By using the wavelength control means at the station side, the wavelength desired by the remote node can be conveniently obtained, and then, the station apparatus can determine a wavelength to be used on the basis of an optical signal received from said remote apparatus, and output optical signal having the wavelength as determined.

Claim 5 is not patentable different from the wavelength controller in AAPA and Majima and Nitta et al because it is "to duplicate a part for a multiple effect" (see St. Regis Paper Company v. Bemis Company, Inc., 193 USPQ 8 (CA 7 1977)).

Also another prior art, Miyazaki et al, teaches a wavelength controller (the wavelength controller in Figures 1 and 3) at the central station so that the wavelength of the laser 16 is set to a correct position based on the signal from the remote apparatus (40 in Figures 1and 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the wavelength controller as taught by Miyazaki et al to the system of the AAPA and Majima so that the controller can get the information from the receiver, and then desired wavelength for reception and transmitting can be easily and automatically selected based on the received information.

2). With regard to claim 6, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 1 above. But, the AAPA and Majima and Nitta et al do not expressly disclose wherein said station apparatus is arranged to prevent an optical signal having the same wavelength as an unreceived wavelength among wavelengths used in said transmission system from being outputted and outputs an optical signal having the same wavelength as a received wavelength.

The AAPA and Majima disclose a wavelength control means for determining an available wavelength as a transmission and reception signal on the basis of said reception status signal at the remote node.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use another wavelength control means at the station

side. By using the wavelength control means at the station side, the wavelength desired by the remote node can be conveniently obtained; also by the wavelength control means at the station side, the station side can determine whether a new remote apparatus is added. It also would be obvious to one skill in the art to arrange the station side to output wavelengths to the existing corresponding remote apparatus so to reduce cost and save energy, that is, to output an optical signal having the same wavelength as a received wavelength (based on the received information), and prevent an optical signal having the same wavelength as an unreceived wavelength among wavelengths used in said transmission system from being outputted so to save energy, reduce interference and system cost.

3). With regard to claim 7, the AAPA and Majima and Nitta et al disclose all of the subject matter as applied to claim 1 above. Add the AAPA and Majima and Nitta et al further disclose wherein said station apparatus comprises:

wavelength demultiplexing means (4 in Figure 1 of the AAPA) for demultiplexing the wavelength of a received optical signal;

optical receiving means (Optical Receiver 111 – 11n in Figure 1 of the AAPA) for receiving an optical signal demultiplexed by said wavelength demultiplexing means;

optical transmitting means (Optical Transmitter 101 – 10n in Figure 1 of the AAPA) for transmitting an optical signal having the transmission wavelength determined by said optical output control means; and

wavelength multiplexing means (3 in Figure 1 of the AAPA) for multiplexing the wavelength of the optical signal transmitted by said optical transmitting means.

But, the AAPA does not discloses optical output control means for determining as a transmission wavelength, an optical signal having the same wavelength as that of an optical signal received by said optical receiving means.

The AAPA and Majima disclose a wavelength control means for determining an available wavelength as a transmission and reception signal on the basis of said reception status signal at the remote node. And Nitta et al actually teaches that the control means can be installed at the station side (Figure 1, 1-1 to 1-n).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use another wavelength control means at the station side. By using the wavelength control means at the station side, the wavelength desired by the remote node can be conveniently obtained, and then, the station apparatus can determine a wavelength to be used on the basis of an optical signal received from said remote apparatus, and output optical signal having the wavelength as that of an optical signal received by the optical receiving means.

Also another prior art, Miyazaki et al, teaches a wavelength controller (the wavelength controller in Figures 1 and 3) at the central station so that the wavelength of the laser 16 is set to a correct position based on the signal from the remote apparatus (40 in Figures 1and 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the wavelength controller as taught by Miyazaki et al to the system of the AAPA and Majima so that the controller can get the information from the receiver, and then desired wavelength for reception and transmitting can be easily and automatically selected based on the received information.

**_Conclusion_**

7. Applicant's amendment and submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 1/29/2008 prompted and necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Liu whose telephone number is (571)270-1084. The examiner can normally be reached on Mon-Fri, 8:00 am - 5:30 pm, alternating Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Li Liu
February 11, 2008

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER